

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 USC 371 AND 37 CFR 1.491		ATTORNEY DOCKET NO. 215214 U.S. APPLICATION NO. 10/031157
INTERNATIONAL APPLICATION NO. PCT/EP00/06212	INTERNATIONAL FILING DATE 4 July 2000 ✓	PRIORITY DATE CLAIMED 16 July 1999 ✓
TITLE OF INVENTION SHEET-GUIDING DEVICE FOR A PRINTING MACHINE		
APPLICANT(S) FOR DO/EO/US Jurgen Scholzig, Ulrich Jung, Ruth Kremer and Thomas Walther		
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:		
1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 USC 371 and 37 CFR 1.491. 2. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 USC 371 and 37 CFR 1.491. 3. <input checked="" type="checkbox"/> This is an express request to begin national examination procedures (35 USC 371(f)). 4. <input checked="" type="checkbox"/> The US has been elected by the expiration of 19 months from the priority date (PCT Article 31). 5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 USC 371(c)(2)) a. <input type="checkbox"/> is attached hereto (required only if not communicated by the International Bureau). b. <input checked="" type="checkbox"/> has been communicated by the International Bureau. c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US). 6. <input checked="" type="checkbox"/> An English language translation of the International Application as filed (35 USC 371(c)(2)). 7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 USC 371(c)(3)) a. <input type="checkbox"/> are attached hereto (required only if not communicated by the International Bureau). b. <input type="checkbox"/> have been communicated by the International Bureau. c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired. d. <input checked="" type="checkbox"/> have not been made and will not be made. 8. <input type="checkbox"/> An English language translation of the amendments to the claims under PCT Article 19 (35 USC 371(c)(3)). 9. <input checked="" type="checkbox"/> An unexecuted oath or declaration of the inventor(s) (35 USC 371(c)(4)). 10. <input type="checkbox"/> An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 USC 371(c)(5)). 11. Nucleotide and/or Amino Acid Sequence Submission a. <input type="checkbox"/> Computer Readable Form (CRF) b. Specification Sequence Listing on: i. <input type="checkbox"/> CD-ROM or CD-R (2 copies); or ii. <input type="checkbox"/> Paper Copy c. <input type="checkbox"/> Statement verifying identity of above copies		
Items 12 to 19 below concern other document(s) or information included: 12. <input type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98. <input type="checkbox"/> Form PTO-1449 <input type="checkbox"/> Copies of Listed Documents 13. <input type="checkbox"/> An assignment for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included. 14. <input checked="" type="checkbox"/> A FIRST preliminary amendment. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment. 15. <input type="checkbox"/> A substitute specification. 16. <input type="checkbox"/> A change of power of attorney and/or address letter. 17. <input checked="" type="checkbox"/> Application Data Sheet Under 37 CFR 1.76 18. <input checked="" type="checkbox"/> Return Receipt Postcard 19. <input type="checkbox"/> Other items or information:		

U.S. APPLICATION NO. 10/031157		INTERNATIONAL APPLICATION NO. PCT/EP00/06212		ATTORNEY DOCKET NO. 215214	
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20. <input checked="" type="checkbox"/> The following fees are submitted: Basic National Fee (37 CFR 1.492(a)(1)-(5)): Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO \$1,040.00 International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO \$ 890.00 International preliminary examination fee (37 CFR 1.482) not paid to USPTO, but international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$ 740.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4)..... \$ 710.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1) to (4) \$ 100.00				CALCULATIONS	PTO USE ONLY
ENTER APPROPRIATE BASIC FEE AMOUNT=				\$890.00	
Surcharge of \$130.00 for furnishing the National fee or oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date				\$,0.00	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total Claims	18	-20=	0	x \$ 18.00	\$,0.00
Independent Claims	1	- 3 =	0	x \$ 84.00	\$,0.00
<input type="checkbox"/> Multiple Dependent Claim(s) (if applicable)				+\$280.00	\$,0.00
TOTAL OF ABOVE CALCULATIONS=				\$890.00	
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.				\$,0.00	
SUBTOTAL=				\$890.00	
Processing fee of \$130.00 for furnishing English Translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date.				\$,0.00	
TOTAL NATIONAL FEE=				\$890.00	
Fee for recording the enclosed assignment. The assignment must be accompanied by an appropriate cover sheet. \$40.00 per property				+	\$,0.00
TOTAL FEE ENCLOSED=				\$890.00	
				Amount to be:	
				refunded	\$
				charged:	\$

a. ☒ A check in the amount of \$890.00 to cover the above fee is enclosed.


b. ☐ Please charge Deposit Account No. 12-1216 in the amount of \$ _____ to cover the above fees. A duplicate copy of this sheet is enclosed.

c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 12-1216. A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.


SEND ALL CORRESPONDENCE TO:

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23460

PATENT TRADEMARK OFFICE



Dennis R. Schlemmer, Registration No. 24,703
One of the Attorneys for Applicant(s)

Date: January 14, 2002

U.S. APPLICATION NO.	INTERNATIONAL APPLICATION NO. PCT/EP00/06212	ATTORNEY DOCKET NO. 215214
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CERTIFICATION UNDER 37 CFR 1.10

"Express Mail" Label Number: EL 841018325 US

Date of Deposit: January 14, 2002

I hereby certify that this express request to begin national examination procedures under 35 USC 371(f) of the International Patent Application referenced above, including all of the items listed thereon as enclosures, is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" Service under 37 CFR 1.10 on the date indicated above and is addressed to Box PCT, Commissioner for Patents, Attention: DO/EO/US, Washington, D.C. 20231.

Wilma Del Nagro

Printed Name of Person Signing:



Signature

PATENT
Attorney Docket No. 215214

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Jurgen Scholzig
Ulrich Jung
Ruth Kremer
Thomas Walther

Art Unit: Unassigned

Application No.

Examiner: Unassigned

Filed:

For: SHEET-GUIDING DEVICE FOR A
PRINTING MACHINE

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

Prior to the examination of the above-identified patent application, please enter the following amendments and consider the following remarks.

AMENDMENTS

IN THE SPECIFICATION:

At page 1, delete lines 1-10.

At page 2, delete line 1 and insert the following headings:

SHEET-GUIDING DEVICE FOR A PRINTING MACHINE

FIELD OF THE INVENTION

At page 2, delete line 8 and insert the following heading:

BACKGROUND OF THE INVENTION

1003457 040106

At page 4, delete line 22 and insert the following heading:

OBJECTS AND SUMMARY OF THE INVENTION

Delete the paragraph beginning at page 8, line 36 to page 9, line 7 and insert the following:

Other objects and advantages of the invention will become apparent upon reading the following detailed description and upon reference to the drawings, in which:

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 is a partially schematic side elevational view of a sheet fed rotary printing machine having sheet-guide devices in accordance with the invention; and

FIG. 2 is an enlarged schematic of one of the sheet-guide devices in accordance with the invention.

While the invention is susceptible of various modifications and alternative constructions, a certain illustrative embodiment thereof has been shown in the drawings and will be described below in detail. It should be understood, however, that there is no intention to limit the invention to the specific form disclosed, but on the contrary, the intention is to cover all modifications, alternative constructions, and equivalents falling within the spirit and scope of the invention.

IN THE CLAIMS:

Replace claims 5, 6, 7, 10, 13, 14, 15, 17 and 18 as follows:

5. (Amended) Sheet-guiding device according to Claim 1, characterized in that the plate/film (11) is a relief printing plate.

6. (Amended) Sheet-guiding device according to Claim 1, characterized in that the rotatable blanket/plate cylinder (12, 2) can be positioned in a print off position.

7. (Amended) Sheet-guiding device according to Claim 1, characterized in that the rotatable blanket/plate cylinder (12, 2) can be positioned with a defined printing pressure.

10. (Amended) Sheet-guiding device according to Claim 1, characterized in that in the cracks, gaps or pores in the chromium, aluminium or anodized aluminium

surface, the plate/film (11) has inlays of at least one fluoropolymer.

13. (Amended) Sheet-guiding device according to Claim 1, characterized in that the release agent contains at least silicone and/or water.

14. (Amended) Sheet-guiding device according to Claim 1, characterized in that the release agent can be transferred to the plate/film (11) that is fixed to the plate cylinder (2) via the metering system (4) and the applicator roll (3).

15. (Amended) Sheet-guiding device according to Claim 1, characterized in that the release agent can be transferred to the plate/film (11) by means of a spray device that extends in the axial direction over the width of the plate cylinder (2).

17. (Amended) Sheet-guiding device according to Claim 1, characterized in that a temperature control device supplying cold air is assigned adjacent to the plate/film (11).

18. (Amended) Sheet-guiding device according to Claim 1, characterized in that the blanket/plate cylinder (2) carrying the plate/film (11) can have its temperature controlled within the cylinder circumference.

IN THE ABSTRACT:

At page 17, delete line 1 and insert the following:

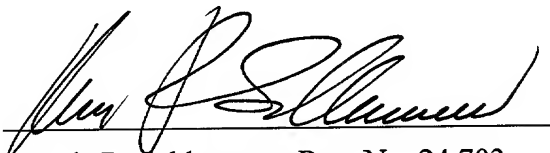
ABSTRACT OF THE DISCLOSURE

At page 17, delete line 18:

REMARKS

By the foregoing Preliminary Amendment, the specification and claims have been amended to improve their form and eliminate multiple dependent claims.

Respectfully submitted,



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Date: January 14, 2002

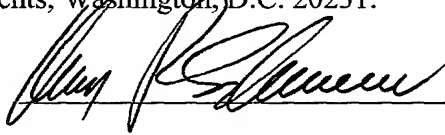
In re Appln. of Scholzig et al.
Attorney's Docket No. 215214

CERTIFICATE OF MAILING

I hereby certify that this PRELIMINARY AMENDMENT (along with any documents referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, Washington, D.C. 20231.

Date:

Jan. 14, 2001



20034157-040402

PATENT
Attorney Docket No. 215214

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Jurgen Scholzig
Ulrich Jung
Ruth Kremer
Thomas Walther

Art Unit: Unassigned

Application No.

Examiner: Unassigned

Filed:

For: SHEET-GUIDING DEVICE FOR A
PRINTING MACHINE

AMENDMENTS TO SPECIFICATION, CLAIMS, AND ABSTRACT
MADE VIA PRELIMINARY AMENDMENT

IN THE SPECIFICATION:

At page 1, delete lines 1-10.

[[Patent application]]

MAN Roland Druckmaschinen AG
Muhlheimer Strasse 341
D-63075 Offenbach

[Title of the invention]

Sheet-guiding device for a printing machine]

At page 2, delete line 1 and insert the following headings:

[[Description]]

SHEET-GUIDING DEVICE FOR A PRINTING MACHINE

FIELD OF THE INVENTION

At page 2, delete line 8 and insert the following heading:

[[Prior art]]

BACKGROUND OF THE INVENTION

At page 4, delete line 22 and insert the following heading:

[[Object of the invention]]

OBJECTS AND SUMMARY OF THE INVENTION

Delete the paragraph beginning at page 8, line 36 to page 9, line 7 and insert the following:

[[Examples]

The invention is to be explained in more detail using an exemplary embodiment. In the drawings, in schematic form:

Fig. 1 shows a sheet-fed rotary printing machine,

Fig. 2 shows a sheet-guiding device in the area of the printing nip.]

Other objects and advantages of the invention will become apparent upon reading the following detailed description and upon reference to the drawings, in which:

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 is a partially schematic side elevational view of a sheet fed rotary printing machine having sheet-guide devices in accordance with the invention; and

FIG. 2 is an enlarged schematic of one of the sheet-guide devices in accordance with the invention.

While the invention is susceptible of various modifications and alternative constructions, a certain illustrative embodiment thereof has been shown in the drawings and will be described below in detail. It should be understood, however, that there is no intention to limit the invention to the specific form disclosed, but on the contrary, the intention is to cover all modifications, alternative constructions, and equivalents falling within the spirit and scope of the invention.

IN THE CLAIMS:

Rewrite claims 5, 6, 7, 10, 13, 14, 15, 17 and 18 as follows:

5. (Amended) Sheet-guiding device according to Claim 1 [and 2], characterized in that the plate/film (11) is a relief printing plate.

6. (Amended) Sheet-guiding device according to [at least] Claim 1, characterized in that the rotatable blanket/plate cylinder (12, 2) can be positioned in a print off position.

7. (Amended) Sheet-guiding device according to [at least] Claim 1, characterized in that the rotatable blanket/plate cylinder (12, 2) can be positioned with a defined printing pressure.

10. (Amended) Sheet-guiding device according to Claim 1 [and 8], characterized in that in the cracks, gaps or pores in the chromium, aluminium or anodized aluminium surface, the plate/film (11) has inlays of at least one fluoropolymer.

13. (Amended) Sheet-guiding device according to Claim 1 [and 12], characterized in that the release agent contains at least silicone and/or water.

14. (Amended) Sheet-guiding device according to Claim 1 [and 12], characterized in that the release agent can be transferred to the plate/film (11) that is fixed to the plate cylinder (2) via the metering system (4) and the applicator roll (3).

15. (Amended) Sheet-guiding device according to Claim 1 [and 12], characterized in that the release agent can be transferred to the plate/film (11) by means of a spray device that extends in the axial direction over the width of the plate cylinder (2).

17. (Amended) Sheet-guiding device according to Claim 1 [and 16], characterized in that a temperature control device supplying cold air is assigned adjacent to the plate/film (11).

18. (Amended) Sheet-guiding device according to Claim 1 [and 16], characterized in that the blanket/plate cylinder (2) carrying the plate/film (11) can have its temperature controlled within the cylinder circumference.

In re Appln. of Scholzig et al.
Attorney's Docket No. 215214

Amendments to the abstract:

At page 17, delete line 1 and insert the following heading:

[[Abstract]]

ABSTRACT OF THE DISCLOSURE

At page 17, delete line 18:

[Fig. 1]

2010-04-09 15:00:00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Jurgen Scholzig
Ulrich Jung
Ruth Kremer
Thomas Walther

Art Unit: Unassigned

Application No.

Examiner: Unassigned

Filed:

For: SHEET-GUIDING DEVICE FOR A
PRINTING MACHINE

PENDING CLAIMS AFTER ENTRY OF PRELIMINARY AMENDMENT

1. Sheet-guiding device for a printing machine having printing/varnishing units that are not involved in the printing/varnishing process to guide sheet printing materials in the area of blanket/plate cylinder and an associated sheet-carrying cylinder, characterized in that on the blanket/plate cylinder (12, 2) there is arranged a plate or film (11) with an ink/varnish-repellent surface, in that the blanket/plate cylinder (12, 2) can be driven at machine speed and a printing material fixed in the grip of grippers, with the printed and/or varnished side assigned to the blanket/plate cylinder (12, 2), can be conveyed through a printing/varnishing nip (10) by means of the sheet-conveying cylinder (1).

2. Sheet-guiding device according to Claim 1, characterized in that the plate or film (11) is a printing plate/printing film which has a layer of silicone rubber on the surface.

3. Sheet-guiding device according to Claim 2, characterized in that the printing plate/printing film (11) is a planographic printing plate.

4. Sheet-guiding device according to Claim 3, characterized in that the printing plate/printing film (11) is a planographic printing plate for damping-solution-free

offset printing.

5. Sheet-guiding device according to Claim 1, characterized in that the plate/film (11) is a relief printing plate.

6. Sheet-guiding device according to Claim 1, characterized in that the rotatable blanket/plate cylinder (12, 2) can be positioned in a print off position.

7. Sheet-guiding device according to Claim 1, characterized in that the rotatable blanket/plate cylinder (12, 2) can be positioned with a defined printing pressure.

8. Sheet-guiding device according to Claim 1, characterized in that the plate/film (11) has a surface of chromium or aluminium or anodized aluminium or contains at least a proportion thereof.

9. Sheet-guiding device according to Claim 1, characterized in that the plate/film (11) has a surface of organic/inorganic hybrid polymers on an aluminium substrate.

10. Sheet-guiding device according to Claim 1, characterized in that in the cracks, gaps or pores in the chromium, aluminium or anodized aluminium surface, the plate/film (11) has inlays of at least one fluoropolymer.

11. Sheet-guiding device according to Claim 1, characterized in that the chromium surface of the plate/film (11) is polished to a mirror finish.

12. Sheet-guiding device according to Claim 1, characterized in that the plate/film (11) can be brought into contact with a release agent.

13. Sheet-guiding device according to Claim 1, characterized in that the release agent contains at least silicone and/or water.

14. Sheet-guiding device according to Claim 1, characterized in that the release agent can be transferred to the plate/film (11) that is fixed to the plate cylinder (2) via the metering system (4) and the applicator roll (3).

15. Sheet-guiding device according to Claim 1, characterized in that the release agent can be transferred to the plate/film (11) by means of a spray device that extends in the axial direction over the width of the plate cylinder (2).

16. Sheet-guiding device according to Claim 1, characterized in that the plate/film (11) can have its temperature controlled.

17. Sheet-guiding device according to Claim 1, characterized in that a temperature control device supplying cold air is assigned adjacent to the plate/film (11).

18. Sheet-guiding device according to Claim 1, characterized in that the blanket/plate cylinder (2) carrying the plate/film (11) can have its temperature controlled within the cylinder circumference.

Amendment - Preliminary (Rev. 6/19/2001)

13 Rec'd PCT/PTO 14 JAN 2002
10/031157

1

[Patent application]

5 MAN Roland Druckmaschinen AG
Muhlheimer Strasse 341
D-63075 Offenbach

[Title of the invention]

10 Sheet-guiding device for a printing machine

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10/031157.040102

[Description]

The invention relates to a sheet-guiding device
for a printing machine according to the
 precharacterizing clause of the main claim and serves
 5 to assist sheet guidance in the area of a printing or
 varnishing nip.

[Prior art]

10 A sheet-guiding device is disclosed, for example,
 by EP 0 306 682 A2. The device essentially comprises
 two blow strips to which blown air is applied and
 which are arranged upstream and downstream of the
 press nip formed between a blanket cylinder and a
 15 printing cylinder, over the cylinder width and
 parallel to the axis. The blow strip which is upstream
 in the conveying direction is arranged in the gore-
 like space above the incoming sheet between the
 blanket cylinder and printing cylinder. The blown-air
 20 stream is directed onto the blanket cylinder, into the
 printing zone itself and onto the upper side of the
 sheet carried in the grip of the grippers on the
 printing cylinder. The downstream blow strip, arranged
 downstream of the printing zone in the conveying
 25 direction, produces a blown-air stream which is
 directed onto the upper side of the sheet carried on
 the printing cylinder and onto the blanket cylinder,
 counter to the conveying direction. The invention
 primarily describes the sheet-guiding device during
 30 printing operation (print on position). Furthermore,
 in printing practice it is usual for the blown-air
 operation to be maintained when the blanket cylinder
 is thrown off (print off position), for example when
 checking the paper run or when a printing unit is not
 35 involved in the printing. The sheet printing material
 is then conveyed through the printing unit, in the
 grip of the grippers on the printing cylinder, through

10/031157-040102

the press nip by means of blown air (without contact with the inactive blanket cylinder).

According to DE 197 19 624 Cl, a sheet-guiding
5 device in a printing machine is known for guiding
printing materials in the area of the blanket/plate
cylinder and sheet-carrying cylinder when the
blanket/plate cylinder is inactive. In this case, the
blanket/plate cylinder, in the print off position, can
10 be positioned and fixed in position with a cylinder
channel assigned adjacent to the circumferential
surface of the sheet-carrying cylinder, it being
possible for the blanket/plate cylinder to be stopped
on the drive side by means of a clutch. Provided in
15 the cylinder channels are sheet guide elements, which
ensure the guidance of the sheet by mechanical and/or
pneumatic means.

In the case of these pneumatically operated
20 sheet-guiding devices, the disadvantage is that given
a relatively high grammage or specific elasticities of
the printing materials, such as for example in the
case of board or sheet metal, the effectiveness of the
sheet guidance is reduced. As a result of the relative
25 movement with the blanket/plate cylinder stationary
and the printing material being conveyed, the risk of
smearing is increased, and as a result the print
quality can be impaired.

30 UK patent GB 2 267 095 B discloses a varnishing
device for a printing machine which is arranged
downstream of the last printing unit. In the case of a
varnishing unit which is not involved in the printing
operation or not involved in the varnishing operation
35 (the varnishing system is shut down), the contact
between a freshly printed upper side of the printing
material on the plate cylinder as it passes through

the press nip can be prevented. For this purpose, the
varnishing unit is constructed in two parts as a lower
part and an upper part. The lower part accommodates
the back-pressure cylinder and the upper part
5 accommodates the plate cylinder with the varnish
metering system. When the varnishing operation is
shut down (print off position), the upper part,
mounted in rotary joints on the lower part, is pivoted
away from the sheet-carrying printing cylinder. This
10 means that a relatively large distance between plate
cylinder and printing cylinder can be achieved in the
press nip (varnishing zone), and the sheet can pass
through the varnishing unit without smearing without
the use of pneumatic sheet-guiding means. If the
15 varnishing operation is to be carried out again, the
upper part is brought into contact with the lower
part, and thus the plate cylinder is brought into
contact again with the sheet-carrying printing
cylinder (print on position). For this purpose, the
20 previously uncoupled drive is re-engaged.

[Object of the invention]

The invention is based on the object of providing
a sheet-guiding device in a printing machine which
25 permits the uniform guidance of a printing material on
a sheet-carrying cylinder, preferably a printing
cylinder, in a printing/varnishing unit that is not
involved in the printing/varnishing process, and
ensures smear-free passage of the sheet printing
30 material through a printing/varnishing nip formed by a
blanket/plate cylinder and sheet-carrying cylinder.

The object is achieved by the design features of
the main claim. Developments emerge from the
35 subclaims.

In the case of in-line sheet-fed rotary printing

machines with printing units for multi-colour printing, one or, more varnishing units can also be assigned to the printing units for in-line finishing. In this case, a varnishing unit can be compared with an offset printing unit, in that the blanket cylinder of the printing unit then corresponds, as is known, to the plate cylinder of the varnishing unit, which is functionally connected to an applicator roll and a varnish metering system. Here, a printing cylinder is employed as a sheet-carrying cylinder both in the printing unit and in the varnishing unit.

It has been found, inter alia, that in the case of an inactive printing/varnishing unit that is not involved in the printing or varnishing process, the sheet printing material to be conveyed through the press nip can be influenced in terms of its guidance directly in the press nip or varnishing nip.

According to the invention, a plate or film, for example a printing plate or printing film, fixed on the blanket/plate cylinder is constructed with an ink/varnish-repellent surface coating.

The plate or film is preferably constructed with a layer of silicone rubber. A plate or film of this type is, in particular, a printing plate or printing film, which can be employed as a relief printing plate or as a planographic printing plate with an ink/varnish-repellent coating. In this case, the relief printing plate can be constructed with layers of silicone rubber over the entire area or distributed zone by zone over the width, preferably being arranged in the conveying direction of the sheet printing material.

Alternatively, a planographic printing plate for

damping-solution-free offset printing, also called waterless offset printing or dry planographic printing, can be employed. A planographic printing plate of this type has, inter alia, a layer of
 5 silicone rubber and a light-sensitive photopolymer layer. In the case of preferred UV exposure under a positive, the layer of photopolymer experiences hardening and, in so doing, bonds with the layer of silicone rubber. The layer of silicone rubber hardened
 10 in this way on the printing plate repels ink or varnish. In a preferred development, this planographic printing plate for damping-solution-free offset printing is constructed with a layer of silicone rubber over the entire area. Alternatively, layers of
 15 silicone rubber are arranged distributed zone by zone over the width of this planographic printing plate, preferably in the conveying direction of the sheet printing material.

20 In a further embodiment, a plate is constructed as a printing film and fixed on the plate cylinder which, as the upper layer, has a layer of silicone rubber over the entire area, the associated substrate being at least a carrier plate, for example an
 25 aluminium plate, or a rubber blanket.

In a further embodiment, a plate or film constructed with an ink/varnish-repellent coating with a very smooth surface or surface layer is fixed on the
 30 blanket cylinder or plate cylinder. A coating of this type preferably has a surface roughness of approximately 1 to 10 μm .

In this case, a first surface or surface layer
 35 consists of chromium or aluminium or contains at least a proportion thereof.

In a further embodiment, a surface or surface layer consists of organic/inorganic hybrid polymers, which is arranged on a substrate consisting of aluminium or at least containing aluminium.

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In a development, inlays of a fluoropolymer or fluoropolymers can also be realized in the composite, for example in cracks, gaps or pores, in the abovementioned surface or surface layer of chromium or aluminium, including anodized aluminium.

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If a plate/film is constructed with a chromium surface or a surface at least containing chromium, such a plate/film can also be implemented as a surface polished to a mirror finish.

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A blanket/plate cylinder which can be driven in rotation at machine speed and has a plate or film, for example a printing plate or printing film, with an ink/varnish-repellent coating, in a printing/varnishing unit that is not involved in the printing/varnishing process, can be moved into a print off position or a position with a gentle printing pressure in relation to the printing material - taking into account the thickness of the printing material. A sheet printing material fixed in the grip of grippers can then be conveyed through a printing/varnishing nip by means of a sheet-carrying cylinder with the already printed and/or varnished side (assigned to the blanket/plate cylinder).

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In this case, it is advantageous that, in order to implement the sheet guidance, the blanket/plate cylinder with plate or film and ink/varnish-repellent coating can be operated in rotation. In this case, noticeably low frictional torques occur between the printed and/or varnished printing material transported

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on a rotating sheet-carrying cylinder, in particular
printing cylinder, and an associated, rotating
blanket/plate cylinder (with plate or film with
ink/varnish-repellent coating) as the relative
5 rotating movements are carried out, by which means the
risk of smearing is reduced.

Moreover, it is advantageous that the splitting
of ink/varnish can be reduced considerably by means of
10 the ink/varnish-repellent coating of the plate or film
fixed on the blanket/place cylinder, so that any
impairment to the print quality can additionally be
avoided.

15 A further advantage is based on the fact that a
drive with a clutch for positioning the cylinder
channel in relation to the printing cylinder and
stopping the blanket/plate cylinder is superfluous.

20 It is likewise advantageous that the sheet-
guiding device can be employed irrespective of the
grammage or modulus of elasticity of the sheet
printing materials to be processed.

25 Blow pipes which can be operated pneumatically
and are arranged upstream and downstream of the
printing/varnishing nip, or sheet guide elements
arranged in the cylinder channel are not required.

30 In order to provide additional assistance to the
sheet guidance, blowing devices can be arranged
upstream and downstream of the printing/varnishing
nip, and assist the transport of the printing
materials on the sheet-carrying cylinder.

35

[Examples]

The invention is to be explained in more detail

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using an exemplary embodiment. In the drawings, in schematic form:

Fig. 1 shows a sheet-fed rotary printing machine,

5

Fig. 2 shows a sheet-guiding device in the area of the printing nip.

Fig. 1 illustrates an in-line sheet-fed rotary printing machine. In this case, a number of printing units for multi-coloured printing, with sheet-carrying cylinders 1, for example printing cylinders, are lined up with one another and are connected to one another by transfer cylinders 17 or turning systems.

15

Fig. 1 shows a partial view of such a printing machine for in-line finishing. Shown here is only a last printing unit 14 having a plate cylinder 13, a blanket cylinder 12 and a printing cylinder 1 as sheet-carrying cylinder. Assigned to the plate cylinder 13 is an inking unit and, if appropriate, a damping unit, which will not be discussed in detail here.

20

Arranged downstream of the printing unit 14, in the conveying direction 5, is a first varnishing unit 15, which is formed by a plate cylinder 2, an applicator roll 3 and a metering system 4, for example a metering roll (two-roll unit) or a chamber-type doctor or at least a dip roll operating on the dip-roll principle. In this case, the corresponding metering system 4 can be employed optionally. The plate cylinder 2 is in turn assigned to the printing cylinder 1. Arranged downstream of the first varnishing unit 15 is a dryer device 20, for example an infrared (IR) dryer, assigned to an adjacent printing cylinder 1 or an adjacent transfer cylinder

25

30

35

17. In the conveying direction 5, the dryer device 20 is followed by a second varnishing unit 16 with plate cylinder 2, applicator roll 3 and metering system 4 which can optionally be employed. The printing
5 cylinders 1 and printing units 14, varnishing units 15, 16 and the dryer device 20 are connected to one another for sheet transport by means of transfer cylinders 17. The printing cylinders 1 and the
10 transfer cylinders 17 are of double-size construction, as referred to a single-size blanket cylinder 12 and a single-size plate cylinder 2, and have gripper systems 7, 8 arranged distributed symmetrically on the periphery.

15 In the conveying direction 5, the second varnishing unit 16 is followed by a deliverer 18, which feeds the sheet printing material in a known way, by means of circulating chain systems 19, to a deliverer stack 9 and deposits it there.

20 In the present example, according to Fig. 2 the second varnishing unit 16 is shown as inactive, that is to say it is not involved in the varnishing process. In this case, the metering system 4 is formed
25 by a chamber-type doctor with associated engraved applicator roll 3. A plate or film 11, here a printing plate 11, this can alternatively also be a printing film 11, is fixed on the plate cylinder 2 of the varnishing unit 16, the said plate cylinder 2 having a
30 cylinder channel 6. The plate/film or printing plate/printing film 11 is provided with an ink/varnish-repellent surface, preferably a coating, and can preferably be fixed in the area of the cylinder channel 6. In one embodiment, the plate/film
35 11 is a printing plate/printing film with a layer of silicone rubber on the surface.

For instance, on the plate cylinder 2 there is arranged, as plate/film 11, a planographic printing plate for damping-solution-free offset printing, with an ink/varnish-repellent layer of silicone rubber
5 formed over the entire area. Alternatively, the plate/film 11 is constructed as relief printing plate.

The plate cylinder 2 can be moved into a print off position, so that a clearance in the printing nip or varnishing nip 10 is formed between the printing
10 cylinder 1 and plate cylinder 2. An already previously printed sheet printing material is led in the grip of grippers of the rotating printing cylinder 1 through the printing/varnishing nip 10 of the varnishing unit
15 16 that is not involved in the printing/varnishing process. At the same time, the plate cylinder 2 located in the print off position, together with the printing plate 11 or printing film 11, rotates in the conveying direction 5 at the machine speed, and the
20 printing material is transported through the printing/varnishing nip 10 without smearing.

In a development, the plate cylinder 2 - taking into account the thickness of the printing material
25 can be set into a position with a gentle printing pressure in relation to the printing material. This means that there is only a defined, slight frictional contact between the printing plate 11 on the plate cylinder 2 and the printing material fixed on the
30 printing cylinder 1. The already previously printed and/or varnished sheet printing material is led in the grip of grippers of the rotating printing cylinder 1 through the printing/varnishing nip 10 of the varnishing unit 16 that is not involved in the
35 varnishing process. At the same time, the plate cylinder 2 located in the position of gentle printing pressure (with the printing plate/printing film 11)

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rotates in the conveying direction 5 at the machine speed, and the printing material is led through the printing/varnishing nip 10 without smearing but in contact with the printing plate/printing film 11.

5

In a further embodiment, a plate or film 11 with an ink/varnish-repellent surface or surface layer can be brought into contact with a release agent. The release agent can be transferred - with the varnish supply interrupted - via the metering system 4, for example a chamber-type doctor with a feed and return line, and the applicator roll 3 to the plate or film 11 on the plate cylinder 2, the plate cylinder 2 rotating. The release agent preferably contains at least silicone and/or water.

In a further embodiment, the plate cylinder 2 is assigned an additional device, with which the release agent can be transferred to the plate or film 11 with ink/varnish-repellent coating fixed on the plate cylinder 2. Suitable for this purpose, for example, is a spray device that extends in the axial direction over the width of the plate cylinder 2 and whose spray nozzles are directed towards the plate cylinder 2, so that the release agent can be transferred to the plate/film 11.

The use of release agent prevents any possible splitting back of the ink or varnish from the printed/varnished printing material onto the plate or film. In addition, the release agent counteracts any possible contamination of the plate/film as a result of the splitting-back of ink/varnish. Therefore, cleaning operations which are otherwise necessary can be reduced.

In a further embodiment, the plate or film 11

fixed on the plate cylinder 2 and having an ink/varnish-repellent surface can have its temperature controlled. In one embodiment, a temperature control device supplying cold air is assigned adjacent to the plate/film 11. The cold air is directed onto the plate/film 11 and forms a film of moisture, which acts as release agent, as condensation on this plate/film 11. In a further embodiment, the plate cylinder 2 (or blanket cylinder 12) carrying the plate/film 11 can have its temperature controlled within the cylinder circumference.

The position of the plate cylinder 2, alternatively of the blanket cylinder 12, with a defined printing pressure in relation to the printing material, or the print off position of blanket/plate cylinder, is not restricted to one of the embodiments of plate or film 11.

If the plate cylinder 2 is to be involved in the varnishing process again, the printing plate/printing film 11 with varnish/ink-repellent surface coating is exchanged, for example for a rubber blanket or a flexographic printing plate, the varnish supply is activated and the plate cylinder 2 is then moved into the print on position.

The solution according to the invention is not restricted to a plate cylinder 2 or comparable blanket cylinder 12. Instead, the respective cylinder 2, 12 can be substituted by a roll with an ink/varnish-repellent surface that is not involved in the printing/varnishing process. The roll is then assigned to the sheet-carrying cylinder 1.

[Patent claims]

1. Sheet-guiding device for a printing machine
having printing/varnishing units that are not involved
5 in the printing/varnishing process to guide sheet
printing materials in the area of blanket/plate
cylinder and an associated sheet-carrying cylinder,
characterized in that on the blanket/plate cylinder
(12, 2) there is arranged a plate or film (11) with an
10 ink/varnish-repellent surface, in that the
blanket/plate cylinder (12, 2) can be driven at
machine speed and a printing material fixed in the
grip of grippers, with the printed and/or varnished
side assigned to the blanket/plate cylinder (12, 2),
15 can be conveyed through a printing/varnishing nip (10)
by means of the sheet-conveying cylinder (1).

2. Sheet-guiding device according to Claim 1,
characterized in that the plate or film (11) is a
20 printing plate/printing film which has a layer of
silicone rubber on the surface.

3. Sheet-guiding device according to Claim 2,
characterized in that the printing plate/printing film
25 (11) is a planographic printing plate.

4. Sheet-guiding device according to Claim 3,
characterized in that the printing plate/printing film
(11) is a planographic printing plate for damping-
30 solution-free offset printing.

5. Sheet-guiding device according to Claim 1
and 2, characterized in that the plate/film (11) is a
relief printing plate.

35

6. Sheet-guiding device according to at least
Claim 1, characterized in that the rotatable

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blanket/plate cylinder (12, 2) can be positioned in a print off position.

7. Sheet-guiding device according to at least
5 Claim 1, characterized in that the rotatable
blanket/plate cylinder (12, 2) can be positioned with
a defined printing pressure.

8. Sheet-guiding device according to Claim 1,
10 characterized in that the plate/film (11) has a
surface of chromium or aluminium or anodized aluminium
or contains at least a proportion thereof.

9. Sheet-guiding device according to Claim 1,
15 characterized in that the plate/film (11) has a
surface of organic/inorganic hybrid polymers on an
aluminium substrate.

10. Sheet-guiding device according to Claim 1
20 and 8, characterized in that in the cracks, gaps or
pores in the chromium, aluminium or anodized aluminium
surface, the plate/film (11) has inlays of at least
one fluoropolymer.

25 11. Sheet-guiding device according to Claim 1,
characterized in that the chromium surface of the
plate/film (11) is polished to a mirror finish.

12. Sheet-guiding device according to Claim 1,
30 characterized in that the plate/film (11) can be
brought into contact with a release agent.

13. Sheet-guiding device according to Claim 1
and 12, characterized in that the release agent
35 contains at least silicone and/or water.

14. Sheet-guiding device according to Claim 1

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and 12, characterized in that the release agent can be transferred to the plate/film (11) that is fixed to the plate cylinder (2) via the metering system (4) and the applicator roll (3).

5

15. Sheet-guiding device according to Claim 1 and 12, characterized in that the release agent can be transferred to the plate/film (11) by means of a spray device that extends in the axial direction over the
10 width of the plate cylinder (2).

16. Sheet-guiding device according to Claim 1, characterized in that the plate/film (11) can have its temperature controlled.

15

17. Sheet-guiding device according to Claim 1 and 16, characterized in that a temperature control device supplying cold air is assigned adjacent to the plate/film (11).

20

18. Sheet-guiding device according to Claim 1 and 16, characterized in that the blanket/plate cylinder (2) carrying the plate/film (11) can have its temperature controlled within the cylinder
25 circumference.

30

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[Abstract]

The invention relates to a sheet-guiding device
5 in a printing machine. The object of the invention is
to provide such a sheet-guiding device which in a
printing/varnishing unit that is not involved in the
printing/varnishing process, permits the smear-free
passage of the printing material in a
10 printing/varnishing nip. This is achieved in that on
the blanket/plate cylinder 12, 2 there is arranged a
printing plate with an ink/varnish-repellent surface
coating, it being possible for the blanket/plate
cylinder 12, 2 to be driven at the machine speed, and
15 the sheet-carrying cylinder 1 conveying the printed or
varnished printing material.

Fig. 1

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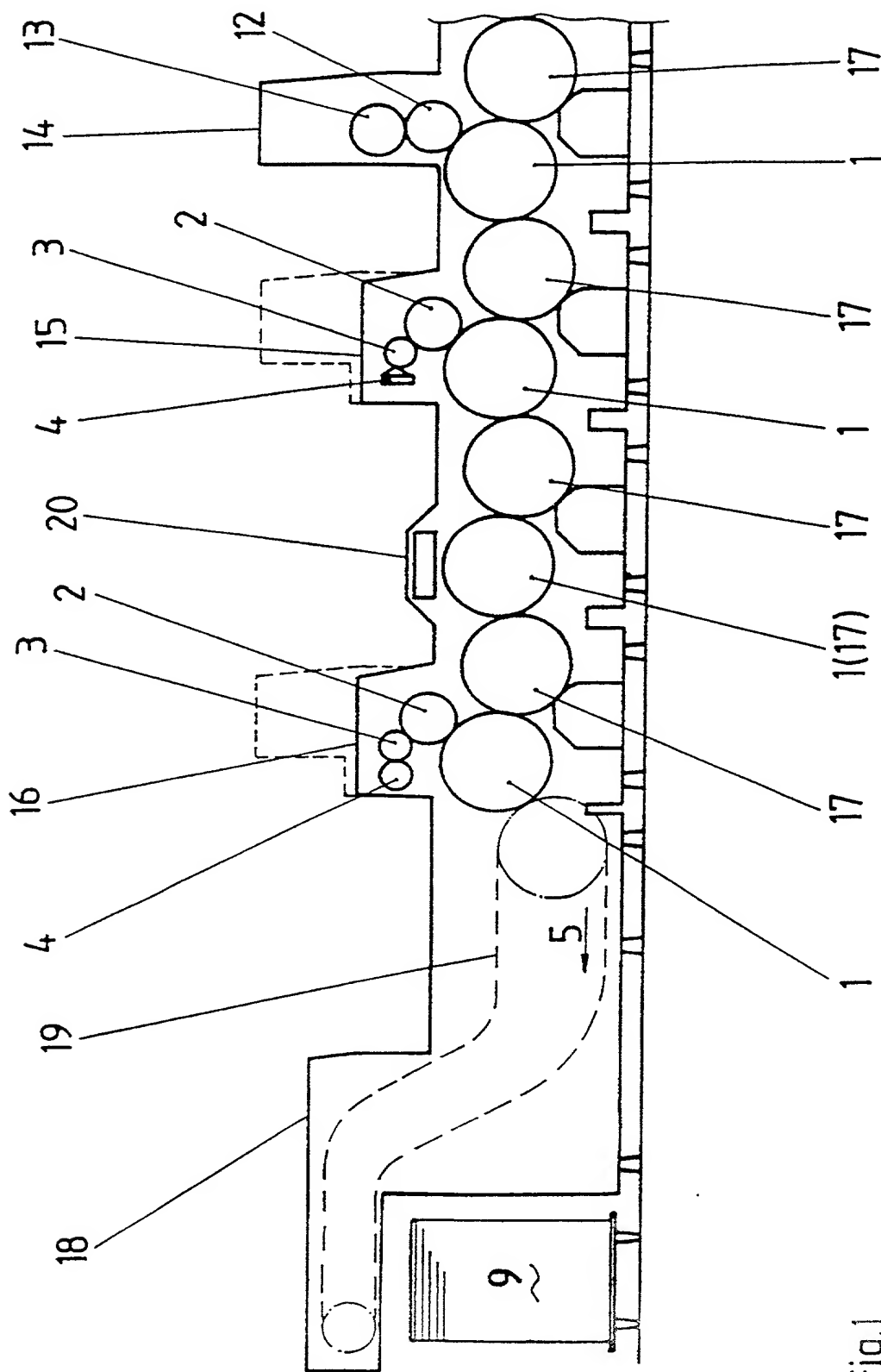
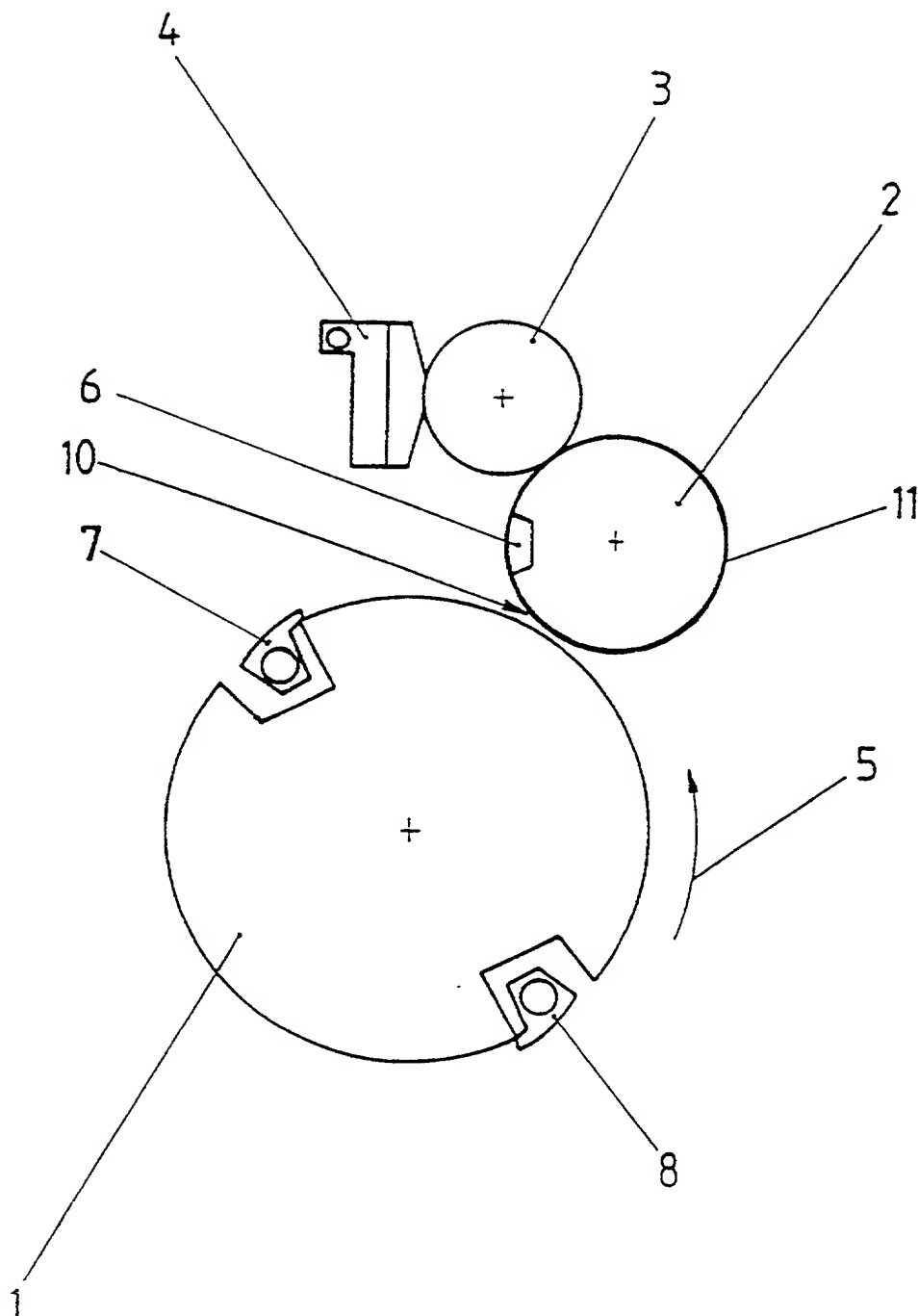


Fig.1

Fig.2



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I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

SHEET-GUIDING DEVICE FOR A

PRINTING MACHINE ✓

the specification of which is attached hereto unless the following box is checked:

- ☐ was filed on _____
as United States Application Number or PCT
International Application Number
_____ and was amended on
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PCT/EP00/06212 ✓	WO
(Number) (Nummer)	(Country) (Land)
199 33 438.2 ✓	Germany ✓
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4 July 2000 ✓	<input type="checkbox"/>
(Day/Month/Year Filed) (Tag/Monat/Jahr der Anmeldung)	
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Unterschrift des zweiten Erfinders	Datum	Fourth Inventor's signature	Date:
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